DETAILED ACTION

Claims 1-4 are under consideration in this application.

Claims 5 and 6 are held withdrawn from consideration as being drawn to nonelected subject matter 37 CFR 1.142(b).

Election/Restrictions

Applicants' election with traverse of Group I and the last compound on page 25 of the specification in the reply filed on October 8, 2009 is acknowledged. The traversal is on the grounds that aryl includes heteroaryls. This is not found persuasive because the term aryl does not include heteroaryl compounds. The aryl compounds are defined as molecules having the ring structure chararacteristic of benzene, naphthalene, phenanthrene, anthracene, etc., as recited in The Condensed Chemical Dictionary. Applicants' own specification on page 6 defines aryl as phenyl or napthyl. A species election requirement had been clearly set forth on page 3 of the previous Office action. Applicants request rejoinder of the method claims of Group VI. Applicants are reminded that any rejoined claims to be **allowable** must meet all the criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. There is no evidence of record that the instant compounds would be able to treat ***all kinase related disorders.*** A claim to all kinase related disorders would be considered a reach through to the continuous development of the field. Disorders and diseases related to kinase inhibition are increasing continuously as evidenced by the art of record.

The restriction requirement is deemed sound and proper and is hereby maintained.

This application has been examined to the extent readable on the elected compounds wherein B and Y represent aryl optionally substituted by non-heterocyclic groups compounds, A

is NR^1, Q is a bond and R^1 as set forth in claim 1, exclusively. All additional heterocycles and heteroaryls pertain to nonelected subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(a), (b) and/or (e) as being anticipated by Thorarensen et al. (US 2004/0110802) and Riordan et al. (US 5,756,524).

Thorarensen et al. recite the instant compounds wherein aryl for B may be substituted by methoxy, methyl, trifluoromethyl or tert-butyl and aryl for Y may be substituted by cyano and carboxy. Note the last four compounds recited in column 294 therein.

Riordan et al. specifically recite the claimed compounds wherein aryl for B may be substituted by methoxy, phenyl, trifluoronethyl or CO_2methyl and the aryl for Y may be substituted by CO_2methyl. Note compound nos. 80, 169, 234, etc.

Hence the compounds are deemed to be anticipated therefrom.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thorarensen et al. and Riordan et al.

Riordan et al. generically embrace the instant compounds. Note the compounds of formula (I) wherein Y is hydrogen or alkyl, X is O, A_1 is (optionally substituted) pyridyl and R^1, Z are halogen, cyano, alkyl, CF_3, etc. As discussed supra, Thorarensen et al. also embrace some of the claimed compounds.

It is believed that one having ordinary skill in the art would have found the claimed compounds prima facie obvious, since they are generically embraced by the disclosed formula; In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). See also In re Malagari, 499 F.2 1297, 182 USPQ 549 (CCPA 1974); In re Lemin, 332 F.2d 839, 141 USPQ 814 (CCPA 1964); In re

Rosicky, 276 F.2d 656, 125 USPQ 341 (CCPA 1960). The requisite motivation for arriving at the claimed compounds stems from the fact that they fall within the generic class of compounds disclosed by the references. Accordingly, one having ordinary skill in the art would have been motivated to prepare any of the compounds embraced by the disclosed generic formula, including those encompassed by the claims.

It is believed well settled that a reference may be relied upon for all that it would have reasonably conveyed to one having ordinary skill in the art. In re Fracalossi, 681 F.2d 792, 215 USPQ 569 (CCPA 1982); In re Lamberti, 545 F.2d 747, 192 USPQ 278 (CCPA 1976); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); In re Susi, supra.

Claim Rejections - 35 USC ∋ 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is a lack of description as to how the crystal forms such as polymorphs, hydrates solvates or prodrugs are produced and what polymorphs, hydrates, solvates or prodrugs are produced in the specification. Jain et al. on page 315 states that the fact that a compound can exist in a crystalline form does not mean that it will always crystallize in one crystalline form.

Vippagunta et al. states on page 11 states the main challenge in managing the phenomenon of multiple solid forms of a drug is the inability to predict the number of forms that can be expected in a given case. Further, Vippagunta et al. recites on page 18 that predicting the formation of solvates of a compound and the number of molecules of solvent or water incorporated into the crystal lattice of a compound is complex and difficult. Guillory in Brittain ed, pages 182-226 teach that solvates are formed by recrystallization of drug substances. However, not all compounds will form solvates. Prodrugs and metabolites are very difficult to find. Note pages 976-977 of Manfred et al.

Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The expressions prodrugs, hydrates, solvates and crystal forms are employed with considerable abandon in claims 1-3 with no indication given as to what the groups really are.

One should be able, from a reading of the claims, determine what that claim does or does not encompass.

Why? Because that claim precludes others from making, using, or selling that compound for 20 years. Therefore, one must know what compound is being claimed.

The specification lacks direction or guidance for placing all of the alleged products in the possession of the public without inviting more than routine experimentation. Applicants are referred to In re Fouche, 169 USPQ 429 CCPA 1971, MPEP 716.02(b).

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is undue. These factors include 1) the breadth of the claims, 2) the nature of the invention, 3) the state of the prior art, 4) the level of one of ordinary skill, 5) the level of predictability in the art, 6) the amount of direction provided by the inventor, 7) the existence of working examples, and 8) the quantity of experimentation needed to make or use the invention based on the content of the disclosure. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

The nature of the invention

The nature of the invention is the preparation of compounds, their prodrugs, salts, hydrates, solvates and crystal forms.

State of the Prior Art

Prodrugs, polymorphs, hydrates and and solvates can have very different properties. Prodrugs, polymorphs, etc., tend to convert from less stable to more stable forms. No method exists to predict what prodrug, polymorph, etc., will work with any significant certainty. Predicting the formation of polymorphs, solvates and hydrates of a compound and the number of molecules of solvent or water incorporated into the crystal lattice of a compound is complex and difficult. Each solid compound responds uniquely to the possible formation of solvates of hydrates and hence generalizations cannot be made for a series of compounds. Note section 3.4 of Vippaguanta et al. Prodrugs, polymorphs, etdc., can convert from one form to another during the manufacturing process of a pharmaceutical drug and will change the pharmacological affects

of the drug. This is why it is important to monitor the compounds during manufacture of the drug to see if it persists during manufacture.

The amount of direction or guidance and the presence or absence of working examples

The specification fails to describe any prodrugs, crystal forms, hydrates or solvates. Prodrugs, polymorphs, etc., often change into other forms during drug manufacture. Based on the unpredictability in the art, applicants are not entitled to any and all unknown prodrugs, crystal forms, hydrates or solvates.

The written description is considered inadequate here in the specification. Conception of the intended group should not be the role of the reader. Applicants should, in return for a 20 year monopoly, be disclosing to the public that which they know as an actual demonstrated fact. The disclosure should not be merely an invitation to experiment. This is a 35 USC 112, first paragraph. If you (the public) find that it works, I claim it, is not a proper basis of patentability. In re Kirk, 153 USPQ 48, at page 53.

The breadth of the claims

The breadth of the claims are drawn to all potential prodrugs, crystal forms, hydrates and solvates in addition to the instant compounds.

The quantity of experimentation needed

The quantity of experimentation needed would be undue when faced with the lack of direction and guidance present in the instant specification in regards to the compounds and their unknown other forms being claimed.

Wolff, Manfred E. "Burger's Medicinal Chemistry", pages 975-977, summarizes the state of the prodrug art. The table on the left side of page 976 outlines the research program to

be undertaken to find a prodrug. The second paragraph in section 10 and the paragraph spanning pages 976-977 indicate the low expectation of success. Jain et al., Guillory and Vippanunta et al. recites the state of the polymorph art.

In terms of the 8 Wands factors, undue experimentation would be required to make or use the invention based on the content of the disclosure due to the breadth of the claims, the level of unpredictability in the art of the invention, and the poor amount of direction provided by applicants. Taking the above factors into consideration, it is not seen where the instant other forms are enabled by the instant application.

Genentech Inc v. Novo Nordisk A/S (CAFC) 42 USPQ2d 1001, states that "a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion" and [p]atent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable".

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The plural 's' on "prodrugs", "hydrates", etc., makes claims 1-3 read on mixtures rather than specific compounds.

The expressions prodrug, hydrates, solvates and crystal forms in claims 1-3 are indefinite.

The claims measure the invention. United Carbon Co. v, Binney & Smith., 55 USPQ 381 at 384, col. 1, end of 1st paragraph, Supreme Court of the United States (1942).

The U.S. Court of Claims held to this standard in Lockheed Aircraft Corp. v. United States, 193 USPQ 449, "Claims measure invention and resolution of invention must be based on what is claimed".

The C.C.P.A. in 1978 held "that invention is the subject matter defined by the claims submitted by the applicant. We have consistently held that no applicant should have limitations of the specification read into a claim where no express statement of the limitation is included in the claim": In re Priest, 199 USPQ 11, at 15.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Morris whose telephone number is (571) 272-0688. The examiner can normally be reached on Mondays through Fridays.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Patricia L. Morris/
Primary Examiner, Art Unit 1625

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